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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,164	05/13/2002	Hiroyuki Teratani	Q68784	9195
23373	7590	05/18/2004	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			FISCHER, JUSTIN R	
			ART UNIT	PAPER NUMBER
			1733	

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

cf

Office Action Summary	Application No.	Applicant(s)	
	10/070,164	TERATANI ET AL.	
	Examiner	Art Unit	
	Justin R Fischer	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,12-20,22-29,39 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-11,21 and 30-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>03042002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species B, sub-species 2 (rubber member formed of rubber composition r2 and disposed in sidewall portion) in Paper No. 04262004 is acknowledged. This election is directed to claims 3-21 and 30-38.
2. A further species election regarding the specific atom in the conjugated diene-based polymer is applicable as set forth below:

This application contains claims directed to the following patentably distinct species of the claimed invention: conjugated diene-based elastic polymer in which a tin atom, a nitrogen atom, and/or a silicon atom is included.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 3-8, 21, and 30-38 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims

are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. During a telephone conversation with Steven Gruskin on May 7, 2004 a provisional election was made without traverse to prosecute the invention of a conjugated diene-based elastic polymer including a tin atom in its molecule, claims 3-11, 21, and 30-38. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 3-7, 21, 30-32, 34, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Halasa (EP 985,554). Halasa, as best depicted in Figure 1, is directed to

a pneumatic, runflat tire construction having a pair of bead portions 3, a carcass layer 10 disposed between said bead portions, a tread portion 2, and a pair of sidewall portions 4, wherein each of said sidewall portions include a rubber member or insert 12 formed of a cured polydiene rubber that is coupled with a Group IVa metal selected from the group consisting of tin, lead, germanium, and silicon (Abstract and Paragraph 39). In this instance, the rubber member or insert 12 can be solely formed of the above noted composition such that the rubber composition is formed of 100% of a conjugated based elastic polymer (polydiene rubber) having at least one of a nitrogen and a silicon atom in its molecule.

As to claim 4, Halasa suggests that the rubber polymers used for the rubber member or insert have a structure that contains four polydiene arms. It is desired that one of the polydiene arms is a low molecular weight arm, one of the polydiene arms is a high molecular weight arm, and two of the polydiene arms are intermediate weight (Page 10, Paragraph 80). Using the values provided by Halasa, a minimum value for the molecular weight (number average) is approximately 200,000- this value suggests a weight average molecular weight of between 400,000 and 500,000, which falls directly in the middle of the claimed range.

Regarding claim 5, Halasa suggests that the ratio between the weight average molecular weight and the number average molecular weight is 2 to about 2.5 (Page 9, Paragraph 78).

With respect to claims 6 and 7, it is preferred that the rubbery polymer be formed by the copolymerization of a conjugated diolefin monomer with a vinyl aromatic

monomer (Page 6, Paragraph 48). In particular, the preferred rubber polymer is a styrene-butadiene copolymer having a coupling agent (modified styrene butadiene copolymer).

As to claim 21, Halasa is directed to a rubber composition having a branched construction (Page 10, Lines 1-8).

Regarding claims 30-32 and 34, Halasa suggests the inclusion of a filler in the form of carbon black, silica, or a combination of carbon black and silica (Page 5, Paragraph 30). In this instance, silica is seen to constitute a porous inorganic filler.

With respect to claim 37, the rubber member or insert 12 of Halasa is arranged at an inner side of the tire and adjacent to the carcass layer 10 (Figure 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halasa and further in view of Hattori (US 5,432,232). As noted in the previous paragraph, Halasa is directed to a runflat tire construction having a rubber member or insert formed entirely of a polydiene rubber that is coupled with a Group IVa metal, such as tin, lead, germanium, or silicon. In this instance, styrene butadiene is a preferred polydiene rubber (Paragraph 52 and Page 20, Lines 20+). While Halasa fails to expressly suggest the vinyl linkage or the percentage of coupling, one of ordinary skill in

the art at the time of the invention would have found the claimed ranges to have been obvious since they are consistent with similar rubber compositions used in tire sidewalls, as shown for example by Hattori. Hattori suggests the use of a styrene butadiene rubber having a vinyl bond between 20 and 70% and a coupling percentage of at least 30%, wherein said rubber is useable in the sidewall portions (Column 2, Lines 30-39 and Column 7, Lines 35-38). It is particularly noted that Hattori suggests that the fracture properties and processability are poor when the coupling percentage is below 30% (Column 4, Lines 62-64). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form the styrene butadiene rubber of Halasa as a rubber having a vinyl linkage greater than 25% and a coupling percentage greater than 40%.

As to claims 9-11, Halasa suggests that the polydiene rubber is cured with a Group IVa metal selected from the group consisting of tin, lead, germanium, and silicon. As to the specific tin coupling agents, Halasa suggests a tin tetrahalide, such as tin tetrachloride (Page 8, Paragraph 70).

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halasa and further in view of Gorce (US 5,665,812). As noted above, the rubber member or insert of Halasa can include a combination of carbon black and silica. While Halasa fails to suggest the specific surface area of the silica, the claimed range defines the well-known and extensively used forms of silica in the tire industry. For example, Gorce is directed to a rubber composition useable in the manufacture of tire components, wherein the silica has a specific surface area less than or equal to $450 \text{ m}^2/\text{g}$ (Column 9,

Lines 10-15), which encompasses the entire range of the claimed invention. It is emphasized that the claimed surface areas are consistent with the common forms of silica used in the tire industry. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include silica having a specific surface area between 50 and 400 m²/g in the rubber composition of Halasa.

9. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halasa and further in view of Muraoka (US 5,907,009). As noted above, the rubber member or insert of Halasa includes carbon black. While Halasa fails to suggest the specific surface area of the carbon black, the claimed range defines the well-known and extensively used forms of carbon black in the tire industry. For example, Muraoka is directed to a rubber composition useable in the manufacture of tire components, wherein the carbon black has a specific surface area between 100 and 200 m²/g (Column 5, Lines 55-61), which falls entirely within the range of the claimed invention. It is emphasized that the claimed surface areas are consistent with the common forms of carbon black used in the tire industry. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include carbon black having a specific surface area between 50 and 400 m²/g in the rubber composition of Halasa.

10. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halasa and further in view of Matsuo (EP 963,863). In describing the composition of the rubber member or insert 12, Halasa suggests the inclusion of a wide variety of additives, as is

well known and conventional in the tire industry. While Halasa fails to expressly suggest the inclusion of sodium 1,6-hexamethylenedithiosulfate dihydrate, this additive represents a well-known and conventional material that promotes reversion resistance and improves ageing characteristics. For example, Matsuo is directed to a similar runflat tire construction in which sodium 1,6-hexamethylenedithiosulfate dihydrate is included in the insert composition for the benefits detailed above (Page 3, Paragraph 16). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to incorporate sodium 1,6-hexamethylenedithiosulfate dihydrate into the runflat composition of Halasa.

11. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halasa in view of either one of Nishikawa (US 6,415,840) or Nishikawa (US 6,209,604). As noted above, Halasa is directed to a runflat tire construction having a rubber member or insert formed entirely of a polydiene rubber that is coupled with a Group IVa metal, such as tin, lead, germanium, or silicon. While the reference is silent as to the inclusion of a rubber filament composite in the sidewall, it is extremely well known to include such a component in a runflat tire in order to improve runflat durability while contributing to the reduction of tire weight, as show for example by either one of Nishikawa '840 (Column 2, Lines 55-65 and Figure 3) or Nishikawa '604 (Column 1, Line 64+ and Figure 1). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include a rubber filament composite in the sidewall of Halasa.

Conclusion

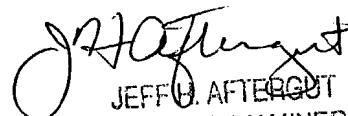
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Justin Fischer

May 10, 2004


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